Space Weather Forecast

Issued on Sunday, 18 June 2023 at 01:15 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Minor/Moderate R1/R2 radio blackouts throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24hrs, with only minor Common-class flares. There are currently six sunspot groups on the visible disc, with a new arrival near the south-eastern limb. The larger more complex groups in the southern/south-eastern disc continue to see some spot reconfiguration and slight development. All other spots appear generally stable. Meanwhile, a large filament in the northwest quadrant has recently lifted off the disc, which has the potential to produce an Earth-directed Coronal Mass Ejection (CME) given its location. Currently awaiting imagery for analysis. Peripheral CMEs observed in the period have been analysed and modelled and none of these carry Earth-directed components. Otherwise, no Earth-directed CMEs have been observed in the past 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind was reflective of ongoing fast wind from a coronal hole. Solar wind speed saw a gradual declining trend from Elevated to Slightly Elevated levels. The associated magnetic field and the all important north-south component was weak throughout. The net result of the above solar wind measures was Unsettled to Quiet geomagnetic activity.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity expected to be Low to Moderate, with a Chance of further Moderate flares, and a very Slight Chance of isolated Strong flares.

Solar Wind / Geomagnetic Activity: No CMEs feature in the current forecast. Solar wind speeds should continue on a declining trend, but remaining at slightly elevated levels, during days 1 and 2 (18-19 June), probably persisting into day 3 (20 June), before potential connection to a couple of small coronal holes (one in the north and another in the south), with fast wind arriving possibly on day 4 (21 June) although this feature was not evident on last rotation, therefore is low confidence. Geomagnetic activity is expected to be mostly Quiet, with slight chance of Unsettled intervals throughout. Slight chance of increasing to Active levels by day 4 (21 June) with a possible fast wind from couple of coronal hole, although this is low confidence.

Energetic Particles / Solar Radiation: No solar radiation storms are expected, though a very Slight Chance of enhancement throughout given the current configuration of front-sided sunspot groups.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	1	1	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	40	40	40	40
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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